CLAIMS

1.- Method for producing titanium composite parts, by means of casting, which comprises the following operational stages:

- Obtaining a titanium composite reinforcement material.
- Obtaining a consumable ingot of titanium or non-reinforced titanium alloy.
- Simultaneous melting of the reinforcement material and of the consumable ingot.
- Casting of the melted composite in the corresponding mould in order to produce the composite piece in its final shape and dimensions.

2.- Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the reinforcement material is obtained by means of the self-propagated high-temperature synthesis method.

3.- Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the reinforcement material is a composite with titanium borides and/or carbides distributed in a titanium or titanium alloy matrix.

4.- Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the titanium composite which constitutes the reinforcement material has between 30-70% by weight of titanium boride and/or carbide, dispersed in titanium or titanium alloy.

5.- Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the consumable ingot is of titanium or titanium alloy.

6.- Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the consumable ingot is a cp-Ti grade 1, cp-Ti grade 2, cp-Ti grade 3, cp-Ti grade 4, Ti-0.05Pd, Ti-6Al-4V, Ti-5Al-2.5Fe,

Ti-5Al-2.5Se, Ti-6Al-2Sn-4Zr-2Mo-0.1Si, Ti-5.8Al-4Sn-3.5Zr-0.5Mo-0.7Nb-0.35Si-0.06C, Ti_3Al, Ti-14Al-11Nb, Ti_2AlNb, γ TiAl, or Ti(22-23)Al-(25-26)Nb(at%) alloy.

7.- Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the reinforcement material, which may be a single piece or divided up, and the consumable ingot are united prior to melting by a welding procedure.

8.- Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the reinforcement material, which may be a single piece or be divided up, and the consumable ingot are united prior to melting by mechanical means.

9.- Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the reinforcement material, which may be a single piece or be divided up, is inserted in one or more holes made in the consumable ingot.

10.- Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the melting is done by the vacuum electric arc and/or vacuum induction melting method.

11.- Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the casting in moulds is done by means of a centrifuging or gravity filling process.

12.- A titanium composite part characterised in that it is produced by casting starting from a titanium composite reinforcement material and a consumable ingot of titanium or non-reinforced titanium alloy.

13.- A titanium composite part, according to claim 12, characterised in that the reinforcement material is a composite with titanium borides and/or carbides, dispersed in titanium or titanium alloy.

14.- A titanium composite part, according to claim 12, characterised in that it has a percentage of titanium boride and/or carbide above 0% and below 70% by weight, dispersed in titanium or titanium alloy.

15.- A titanium composite part, according to claim 12, characterised in that the reinforcement material is obtained by means of the self-propagated high-temperature synthesis technique.

16.- A titanium composite part, according to claim 12, characterised in that the titanium composite which constitutes the reinforcement material has 30-70% by weight of titanium boride and/or carbide, dispersed in titanium or titanium alloy.

17.- A titanium composite part, according to claim 12, characterised in that the consumable ingot is of titanium or titanium alloy.

18.- A titanium composite part, according to claim 12, characterised in that the consumable ingot is a cp-Ti grade 1, cp-Ti grade 2, cp-Ti grade 3, cp-Ti grade 4, Ti-0.05Pd, Ti-6Al-4V, Ti-5Al-2.5Fe, Ti-5Al-2.5Sn, Ti-6Al-2Sn-4Zr-2Mo-0.1Si, Ti-5.8Al-4Sn-3.5Zr-0.5Mo-0.7Nb-0.35Si-0.06C, Ti_3Al, Ti-14Al-11Nb, Ti_2AlNb, γ TiAl, or Ti(22-23)Al-(25-26)Nb(at%) alloy.

19.- A titanium composite part, according to claim 12, characterised in that the reinforcement material, which may be a single piece or divided up, and the consumable ingot are united, prior to melting, by a welding procedure.

20.- A titanium composite part, according to claim 12, characterised in that the reinforcement material, which may be a single piece or divided up, and the consumable ingot are united, prior to melting, by mechanical means.

21.- A titanium composite part, according to claim 12, characterised in that, prior to melting, the reinforcement material, which may be a single piece or divided up, is inserted into one or more holes made in the consumable ingot.

22.- A titanium composite part, according to claim 12, characterised in that the melting is done by means of the vacuum induction melting and/or vacuum electric arc melting method.

23.- A titanium composite part, according to claim 12, characterised in that the casting in the moulds is done by means of a centrifuging or gravity filling method.